UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,294	02/20/2002	Bodo K. Parady	5181-05005	7976

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EXAMINER
PRIETO, BEATRIZ

ART UNIT	PAPER NUMBER
2142	

DATE MAILED: 01/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Application No.	Applicant(s)
10/079,294	PARADY, BODO K.
Examiner	Art Unit
B. Prieto	2142

Office Action Summary

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _20 February 2002_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-26_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-26_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _20 February 2002_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application)
since a specific reference was included in the first sentence of the specification or in an Application Data Sheet.
37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific
reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _2_ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

1. This communication is in response to application No. 10/079,294 filed 02/20/02, claims 1-26 have been examined as hereby set forth.

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by PERDIKARIS et. al. U.S. Patent No. 5,121,388 (Perdikaris hereafter)

Regarding claim 1, Perdikaris teaches substantial features of the invention as claimed, teaching a system (Fig. 1) comprising:

a link, communication path or bus ("first ring") (152) configured to communicate frames among at two stations modules (101-105) coupled to said first ring (col 2/lines 52-61 and col 7/lines 9-14);

a second ring (120-121) (col 2/lines 42-45); and

a first bridge module (108) coupled to said first ring and to said second ring (col 2/lines 38-45 and col 10/lines 5-7), wherein said first bridge module is configured to transmit frames received from said first ring to said second ring and frames received from said second ring to said first ring if the destination address within said frames indicates a destination not residing or remote ("external") to the ring from which the frames where received (i.e. inter-bus communication) (col 7/lines 1-7, col 10/lines 5-32, 44-65), and

wherein said first ring and said second ring both employ a particular protocol for transmitting frames (col 4/lines 7-11).

Regarding claim 2, said first and second ring comprises optical links coupled between one of said at least two modules and said first bridge module (col 2/lines 62-col 3/line 5 and col 7/lines 24-26).

Regarding claim 3, said second ring comprises a plurality of optical links (120 & 121) and wherein one is coupled to said bridge module (108) (Perdikaris: Fig. 1).

Regarding claim 4, wherein said protocol comprises time division multiplexing (Perdikaris: col 1/lines 7-26) in which a first ring transit time corresponding to said first ring is divided into a first plurality of time slots (Perdikaris: col 1/lines 5-26).

Regarding claim 5, wherein each of said first plurality of time slots is capable of transmitting one frame (Perdikaris: col 4/lines 12-16, 45-51).

4.   Claims 6-11 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable by Perdikaris in view of DIXON et. al. U.S. Patent No. 3,755,786 (Dixon hereafter)

Regarding claim 6, although Perdikaris teaches the use of time division multiplexing, wherein ring transit time is divided into a plurality of slot time, he does not explicitly teach wherein these slots are assigned to station modules.

Dixon discloses wherein each of said first plurality of time slots is assigned to terminals (i.e. "owner"), where transit time is divided into a plurality of time slots of fixed length (abstract and col 1/lines 5-26).

It would have been obvious at the time the invention was made given Perdikaris suggestion of the user of time division multiplexing which a first ring transit time corresponding to said first ring is divided into a first plurality of time slots, to utilize Dixon's teaching for assigning these slots to specific station modules, motivation would be to support Perdikaris reuse of time slots to enable owners as well as non-owners the use of available time slots by using indicia indicative of the usage of the time slot, as suggested by Dixon.

Regarding claim 7, wherein a ("second") ring transit time corresponding to said second ring is divided into a ("second") plurality of time slots (Perdikaris: col 1/lines 5-26, & Dixon: abstract and col 1/lines 5-26), and wherein the length of each of said plurality of time slots is fixed (Dixon: abstract col 1/lines 5-26).

Regarding claim 8, wherein said owner of a first one of said first plurality of time slots is configured to allow another module to use said first one of said first plurality of time slots by marking said first one of said first plurality of time slots not owned (i.e. free or available) (Dixon: col 4/lines 52-58).

Regarding claim 9, wherein said owner of said first one of said first plurality of time slots is further

configured to reclaim said first one of said first plurality of time slots as owned by marking it as in use (Dixon: col 4/lines 44-58, col 9/lines 23-26, 60-col 10/line 18).

Regarding claim 10, wherein said owner of said first time slot is configured to use said first time slots upon receiving a null frame within said first time slots (Perdikaris: receiving an empty frame see col 5/lines 49-54, station configured to use time slots see col 5/lines 59-col 6/line 4, Dixon: time slots assigned to terminal "owner", see abstract and col 1/lines 5-26).

Regarding claim 11, wherein return address within a ("third") frame transmitted within said first one of said first plurality of time slots identifies which module coupled to said first ring is a source of said third frame (Perdikaris: 216 of Fig. 2. col 4/lines 35-51, identification address see col 11/lines 41-48).

Regarding claim 20, the combined teaches mentioned-above further teach:

a ring (152) configured to transmit frames between a plurality of modules (101-105) coupled to said ring (Perdikaris: col 2/lines 52-61 and col 7/lines 9-14); and

a first module within said plurality of modules coupled to said ring (Perdikaris: col 2/lines 52-61 and col 7/lines 9-14);

wherein a ring transit time corresponding to said ring is divided into a plurality of time slots, and wherein each of said plurality of time slots is capable of carrying a data frame (Fig. 2) (Perdikaris: col 1/lines 7-26 and Dixon: col 1/lines 5-26), and

wherein a first time slot within said plurality of time slots is assigned to said first module (Dixon: abstract and col 1/lines 5-26), and

wherein said first module is configured to allow a different one of said plurality of modules to use said first time slot by marking a first frame within said first time slot ("not owned") free or available (Dixon: col 4/lines 44-58, col 9/lines 23-26, 60-col 10/line 18), and

wherein said first frame includes a return address which identifies which one of said plurality of modules is a source of said first frame (Perdikaris: 216 of Fig. 2. col 4/lines 35-51, identification address see col 11/lines 41-48).

5.   Claims 12-19, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable by Perdikaris in view Dixon in further view of Sweazey U.S. Patent No. 5,504,747

Regarding claim 12, although Perdikaris teaches the use of multiple rings configured to communicated

frames among station modules coupled to respective multiple rings, he does not explicitly teach the use of multiple bridges.

Sweazey teaches a system/method related to interconnecting multiple computers in a computer network, including a multi-ring multi-bridge (Figs. 2 or 3) LAN including bridges 54 interconnecting rings 22 having multiple user stations 20 and rings 23, thereby, disclosing a second bridge coupled to second and third rings.

It would have been obvious to one ordinary skilled in the art at the time the invention was made given the suggestion of interconnection a time-division multiplex system to other system such as local area network, one skilled in the art would have considered Sweazey's teaching for interconnection multiple networks such as LANs using multiple bridges. Motivation would be provide a routing mechanism that supports the exchange of information between station modules via multiple interconnecting bridges, wherein each bridge provides routing information to the data exchanged that describes the entire routing path back or return address to the initial source station module, as taught by Sweazey.

Regarding claim 13, wherein said computer system is configured to perform a ("chain transaction") forwarding or relay transmission between said first ring and said third ring (Perdikaris: transmission of data between the first and third ring col 7/lines 5-7, interconnecting three rings see col 10/lines 5-7), wherein said chain transaction comprises a plurality of frames (Perdikaris: col 4/lines 48-51).

Regarding claim 14, wherein said first bridge module, upon receipt of a first one of said plurality of frames from said first ring from sender on said first ring, is configured to transmit said first one of said plurality of frames to said second ring (Perdikaris: col 7/lines 1-7, col 10/lines 5-32, 44-65), and to store a first return address of a sender of said first one of said plurality of frames (Perdikaris: col 10/lines 33-35, 57-61), although prior art does not explicitly teach storing source addresses;

Official Notice (*see MPEP § 2144.03 Reliance on "Well Known" Prior Art*) is taken that a bridge configured to store the address on an incoming packet, known as "learning" was old and well known in the Data Processing art (e.g. see exemplary references below). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include interconnecting devices (e.g. bridge) learning capabilities because enable a dynamic table or map of the devices residing on the network sensitive to the addition or removal of devices on the network as opposed to prestored tables that may become inaccurate with time.

Regarding claim 15, wherein said first bridge module is configured to replace said first return address within said first one of said plurality of frames with a second return address, and wherein said second return address identifies said first bridge module upon said second ring (Sweazey: abstract, replacing addresses col 3/lines 64-col 4/line 5, col 9/lines 26-39).

Regarding claim 16, further including limitation discussed on claim 14, same rationale of rejection is applicable and further wherein said second bridge module is configured to determine that said first one of said plurality of frames identifies a module upon said third ring and to transmit said first one of said plurality of frames upon said third ring (Perdikaris: col 7/lines 1-7, col 10/lines 5-32, 44-65).

Regarding claim 17, wherein said first bridge module and said second bridge module are configured to accept a particular frame identified as a chain frame only if said particular frame is one of said plurality of frames that are to be transmitted, until each of said plurality of frames have been transmitted (Perdikaris: col 7/lines 1-7, col 10/lines 5-32, 44-65).

Regarding claims 18-19, further including features discussed on claim 14, same rationale of rejection is applicable, and wherein the bridge module identifies remaining ones of said plurality of frames using said return address (Perdikaris: col 10/lines 33-35).

Claim 20 discussed above.

Regarding claim 21, this claim is substantially the same as claim 9, same rationale of rejection is applicable.

Regarding claim 22, wherein said one of said plurality of modules which is a source of said first frame is configured to acknowledge said first module reclaiming said first time slot by transmitting a null frame in said first time slot (i.e. not using or placing data for transmission) (Dixon: col 4/lines 44-58, col 9/lines 23-26, 60-col 10/line 18).

Regarding claim 23, this claim is substantially the same as claim 10, discussed above same rationale of rejection is applicable.

6.   Quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action may be found above.

7.   Claim 24 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,680,756 Sugimoto et. al. (Sugimoto hereafter)

Regarding claim 24, Sugimoto discloses substantial features of the invention as claimed, teaching a computer system (abstract) comprising:

a plurality of transmission lines ("rings") (R1, R2 & R3) configured to communicate frames between a first plurality of stations (A1-A6) coupled to each said respective ring (col 6/lines 17-21, 32-34);

a first bridge module (B1) coupled between said first ring (R1) and said third ring (R2) and second bridge module (B2) coupled between said second ring (R3) and said third ring (R2) (Fig. 1),

wherein said first bridge modules (B1) and said second bridge module (B2) are configured to perform a ("first chain transaction") relay operation (abstract) comprising a plurality of frames (col 7/lines 7-12),

wherein said first bridge module is configured to received a frame from said plurality of modules and to record a ("first return") address from said first one of said plurality of frames which identifies the module within said first ring (col 10/lines 10-12, 46-52, step 305 of Fig. 11), and

wherein said first bridge module (B1) is configured transmit said first one of said plurality of frames upon said third ring (R2) after replacing said first return address with a second return address identifying said first bridge module (col 1/lines 51-61, col 5/lines 30-34, and col 4/lines 48-51), and

wherein said second bridge module is configured to record said second return address (col 1/lines 30-37), recording enables the bridge module to identify the plurality of frames recognizing where the frames are destined (col 1/lines 36-60).

8.   Claim 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable by Sugimoto U.S. Patent No. 4,680,756 in view of Cato et. al. U.S. Patent No. 5,255,268.

Regarding claims 25-26, wherein said first bridge module is configured to receive a particular frame indicating a ("second chain") relay transaction ("upon") from said first ring (Sugimoto: col 5/lines 3-34), and wherein said particular frame is sourced from one module ("different one of said first plurality of modules") (Sugimoto: col 5/lines 3-34), and however Sugimoto does not explicitly teach wherein bridges are is configured to retransmit said particular relay transaction upon a chain transaction is incomplete.

Cato teaches a system/method related to interconnecting multiple computers within a computer system,

wherein a bridge is configured to retransmit incomplete frames (abstract, col 6/lines 64-68, col 8/lines 12-17).

It would have been obvious to one ordinary skilled in the art at the time the invention was made, given the Sugimoto's suggestion of interconnection multiple computer networks via multiple bridges, to consider Cato's teaching for interconnection multiple computer within a computer network via multiple bridges, would enable one ordinary skilled in the art to **configured the bridges to retransmit specific relayed data frames received from a specific ring transmission lines based on the frames sequence and transmission line number, motivation would be to improve the reliability in Sugimoto's system, particularly upon detecting a missing data sequentially transmitting data packets based in the mission frame.

Citation of Pertinent Art:

The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Copies of documents cited will be provided as set forth in MPEP§ 707.05(a):

U.S. Patent No. 5,598,542 (Jan 1997)

Leung teaches wherein time slots are derived from a predetermined computation, i.e. statically assigned to a station, including a dynamically alterable time slot assignment register for dynamically storing a time slot assignment, said time slot assignment value being dependent upon the average access time of each of said plurality of busses to said host processor bus and being used to directly divide accesses to one of said bus controllers, among the others of said plurality of bus controllers, with one access to said one bus controller being granted per time slot position during contention for accessing said one bus;

U.S. Patent No. 4,199,661 (April 1980)

White et. al. teaches where time slots are statistically assigned, that is the stations each have a statistically equal number of assigned time slots.

U.S. Patent No. 4,665,518 (May 1987)

Champlin et. al. teaches wherein time-slots are assigned to terminals on the basis of statistical worst-case data load.

U.S. 4,737.953 (April 1988)

Koch et. al. teaches wherein if the source address contained in the received message frame is not present in the table. the receiving bridge side learns the location of the frame-sending device by adding the source address to the table.

U.S. Patent No. 5,060,228 (October 1991)

Tsutsui et. Al. teaches a learning table is provided in the respective bridge apparatuses for storing at least the source address corresponding to the terminal address, the port numbers of each bridge apparatus; and the address of the node of the backbone network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prieto, B. whose telephone number is (703) 305-0750. The Examiner can normally be reached on Monday-Friday from 6:00 to 3:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's Supervisor, Jack B. Harvey can be reached on (703) 305-9705. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800/4700.

Any response to this action should be mailed to:
                          Commissioner of Patents and Trademarks
                          Washington, D.C. 20231

      or faxed to the Central Fax Office:

            (703) 872-9306, for Official communications and entry;

      Or Telephone:

            (703) 306-5631 for TC 2100 Customer Service Office.

      Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Fourth Floor (Receptionist), further ensuring that a receipt is provided stamped "TC 2100".

B. Prieto
TC 2100
Patent Examiner